

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/018540

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01J23/89 B01J23/656 B01J23/60 B01D53/94

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01J B01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 245 307 B1 (INUI SATOSHI ET AL) 12 June 2001 (2001-06-12) examples 1-36 -----	1-8
X	EP 0 304 095 A (ENGELHARD CORPORATION) 22 February 1989 (1989-02-22) examples I-III -----	1-6,8
X	US 4 504 598 A (ONO ET AL) 12 March 1985 (1985-03-12) examples 1-17 -----	1,2,5-8
X	US 3 867 309 A (OLECK ET AL) 18 February 1975 (1975-02-18) claims 1-14 examples 10-12 table VI -----	1-4,6,8
		-/-



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

2 February 2005

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INTERNATIONAL SEARCH REPORT

International Application No PCT/JP2004/018540

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 306 945 A (PHILLIPS PETROLEUM COMPANY) 15 March 1989 (1989-03-15) examples III,IV,V,VI,IX,X -----	1,2,6,8
X	US 5 756 057 A (TSUCHITANI ET AL) 26 May 1998 (1998-05-26) examples 14-16,34-38 table 1 -----	1,2,5-8
X	EP 0 449 423 A (NIPPON SHOKUBAI KAGAKU KOGYO CO. LTD; NIPPON SHOKUBAI CO., LTD) 2 October 1991 (1991-10-02) examples 4,6,7 tables 1,2 -----	1,2,5-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/JP2004/018540	
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Patent document cited in search report	Publication date		Patent family member(s)	Publication date
US 6245307	B1	12-06-2001	CA 2151859 A1 DE 69525791 D1 DE 69525791 T2 EP 0687495 A2 JP 8057318 A	18-12-1995 18-04-2002 26-09-2002 20-12-1995 05-03-1996
EP 0304095	A	22-02-1989	AT 44887 T AU 618391 B2 AU 3950389 A AU 589564 B2 AU 4364285 A BR 8502767 A CA 1242687 A1 DE 3571766 D1 DE 171151 T1 EP 0171151 A1 EP 0304095 A2 ES 8700960 A1 ES 8707126 A1 ES 8702172 A1 JP 1883659 C JP 6007923 B JP 61011147 A KR 9209112 B1 KR 9209113 B1 MX 173884 B US 4675308 A CA 1247074 A1 US 4738947 A CA 1242686 A1 US 4678770 A	15-08-1989 19-12-1991 07-12-1989 19-10-1989 19-12-1985 18-02-1986 04-10-1988 31-08-1989 27-11-1986 12-02-1986 22-02-1989 16-02-1987 01-10-1987 16-03-1987 10-11-1994 02-02-1994 18-01-1986 13-10-1992 13-10-1992 07-04-1994 23-06-1987 20-12-1988 19-04-1988 04-10-1988 07-07-1987
US 4504598	A	12-03-1985	JP 1406311 C JP 59209646 A JP 62014337 B JP 1406313 C JP 59230639 A JP 62014338 B CA 1213874 A1 DE 3484324 D1 EP 0125565 A2	27-10-1987 28-11-1984 01-04-1987 27-10-1987 25-12-1984 01-04-1987 11-11-1986 02-05-1991 21-11-1984
US 3867309	A	18-02-1975	NONE	
EP 0306945	A	15-03-1989	US 4920088 A CA 1319360 C DE 3880241 D1 DE 3880241 T2 EP 0306945 A1 JP 1148334 A JP 1905479 C JP 6034921 B	24-04-1990 22-06-1993 19-05-1993 29-07-1993 15-03-1989 09-06-1989 08-02-1995 11-05-1994
US 5756057	A	26-05-1998	CA 2138133 A1 CA 2363487 A1 DE 69427744 D1 DE 69427744 T2 EP 0666099 A1	10-11-1994 10-11-1994 23-08-2001 23-05-2002 09-08-1995

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/JP2004/018540

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5756057	A	WO	9425143 A1	10-11-1994
EP 0449423	A	02-10-1991	JP 3113662 B2 JP 3249948 A AT 104174 T CA 2036888 A1 DE 69101661 D1 DE 69101661 T2 EP 0449423 A1 KR 9502223 B1 US 5106802 A	04-12-2000 07-11-1991 15-04-1994 27-08-1991 19-05-1994 28-07-1994 02-10-1991 15-03-1995 21-04-1992